

CLAIMS

1. An air melted, substantially graphite and nitrogen-free alloy, aged or not aged by precipitation hardening, specially adapted for gas turbine or internal combustion engine exhaust system parts, comprising a graphite-free microstructure of the following composition:

	Carbon	max 0.4 wt.%
	Silicon	0.5 to 6 wt.%
	Manganese	0.1 to 4.5 wt.%
10	Phosphorous	0.01 to 0.08 wt.%
	Nickel	13 to 38 wt.%
	Chromium	0 to 6 wt.%
	Sulphur	max 0.12 wt.%
	Nitrogen	max 0.02 wt.%
15	Iron	balance

2. Alloy as in claim 1 further comprising:  
Molybdenum in the range of 0.1 to 4 wt.%.

3. Alloy as in claim 1 further comprising  
maximum 1 wt.% of copper.

20 4. Alloy as in claim 1 or 2 further comprising  
Copper in a range of 0.5 to 8 wt.% and wherein the nickel concentration is in a range of 13 to 22 wt.%

5. Alloy as in claim 1 further comprising:

	Niobium	1 to 5 wt.%
25	Titanium	max 1 wt.%
	Aluminium	max 1 wt.%

6. Alloy as in claim 1 further comprising:

	Niobium	max 2 wt.%
	Tungsten	max 4 wt.%
30	Zirconium	max 1 wt.%
	Vanadium	max 1 wt.%

7. Process for the manufacturing of the composition disclosed in claim 5, wherein said alloy is strengthened by precipitation hardening of  $(\text{Ni}_3[\text{Al,Ti}])$ ,  $(\text{Ni}_3[\text{Nb,Al,Ti}])$ , or  $(\text{Ni}_3\text{Nb})$ .

5           8. Process for the manufacturing of the composition disclosed in claim 1, 2, 3 or 4, wherein said alloy is strengthened by precipitation hardening of  $\text{Mo}_2\text{C}$ .

          9. Process for the manufacturing of the composition disclosed in claim 2, 3 or 4, wherein said alloy  
10 is not strengthened by ageing and precipitation hardening.